First Aid

METROPOLITAN LIFE
INSURANCE COMPANY
HOME OFFICE: NEW YORK
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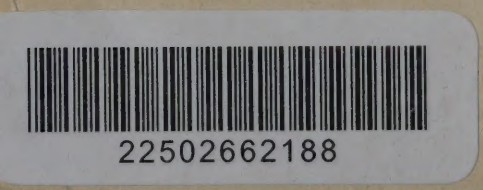
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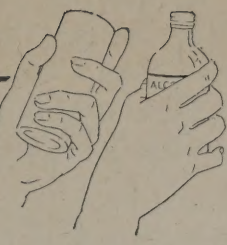
First Aid



WHAT TO DO FIRST

1. Take charge. A life may be lost for want of someone to take charge and give first aid when an accident has happened.

2. Examine the victim carefully and thoroughly to find out how seriously he is hurt. Do not be satisfied with noting only the injuries that are plain to be seen. If necessary, rip or cut the clothing from the injured part to get a clear view. Look especially for wounds, broken bones, burns, signs of shock. Treat the most serious injury first. Severe bleeding, stoppage of breathing, and poisoning are the big three emergencies which require instant first aid to prevent death.

3. Move the victim only if absolutely necessary, and then with the greatest caution. Rough handling will make a bad matter worse. In case of simple fracture, for example, one or both ends of the broken bone may be pushed through the skin if the victim is not handled properly.

4. Act promptly but not hastily. Decide what needs to be done and do it. Handle various injuries as suggested in this booklet. Keep calm and quiet. Do whatever is necessary to save the victim's life and to keep him warm and quiet, but no more.

5. Send for a doctor. In calling the doctor, tell him where the victim is, the nature of the injuries, and what you have done.

SHOCK

All serious injuries and most slight ones cause shock. Shock is dangerous. Measures should be taken to prevent it or to lessen its severity as soon as urgent life-saving measures, such as the control of severe bleeding, have been started.

Signs. Signs of shock may not appear for some time after an injury. A person in a state of shock seems stupid and loses interest

in what is happening, or he may be partly or totally unconscious. However, if there is bleeding, he may act restless and excited. His skin is pale and covered with a cold, clammy sweat; his lips and nails may be blue. His pulse is rapid and hard to find, and his breathing is feeble. The victim often has a severe chill and usually complains of feeling cold.

First Aid. The development of shock may be prevented, or its severity lessened, by taking the following measures in all cases of serious injury. Keep the victim warm and lying down until the doctor arrives. Lay him flat on his back with his head level with the rest of his body unless some other position is advised for a particular injury. Keep him warm with blankets placed under and over him, and with hot-water bottles or hot bricks or stones wrapped in cloth or newspaper. Be careful not to burn him. It is best to test, on your own forearm, the heat of any heating device. If the victim is conscious and if there are no signs of external or internal bleeding or head injury, it may be helpful to give him a stimulant such as aromatic spirits of ammonia (½ teaspoonful in ½ glass of water) or sweetened hot coffee or tea or hot water.

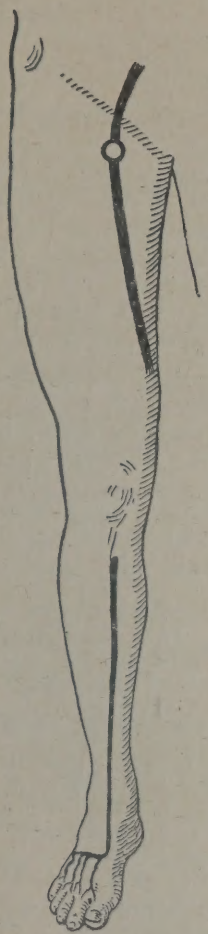
HOW TO STOP BLEEDING FROM EXTERNAL WOUNDS

A wound is any break in the skin or mucous membrane, either within the body or on its surface. In dealing with an external wound the first and most important thing to do is to stop severe bleeding if it is present.

Pressure Methods

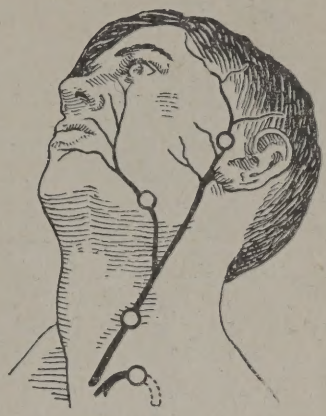
Blood flowing in quick spurts means that an artery has been cut; a steady flow means that a vein has been cut. Bleeding from an artery can usually be stopped by pressing with the hand or fingers at the spot where the artery crosses a bone. The main pressure points for the control of arterial bleeding are shown in Figures I–VII. Pressure should be made on the pressure point nearest the wound between the wound and the heart.

Bleeding from a vein (steady flow), can usually be stopped by bandaging a compress in place over the wound or by pressing with the fingers near the edges of the wound until a compress can be obtained. Elevating the wounded limb also helps to control bleeding from a vein in an arm or leg.



PRESSURE POINTS

The six principal pressure points for the control of arterial bleeding. Press on the point nearest the wound between the wound and the heart.



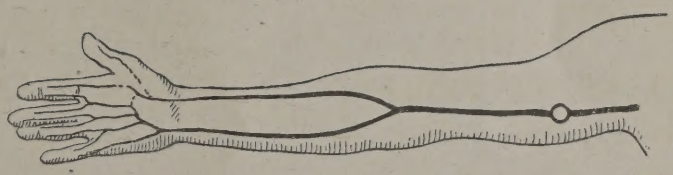


FIGURE I

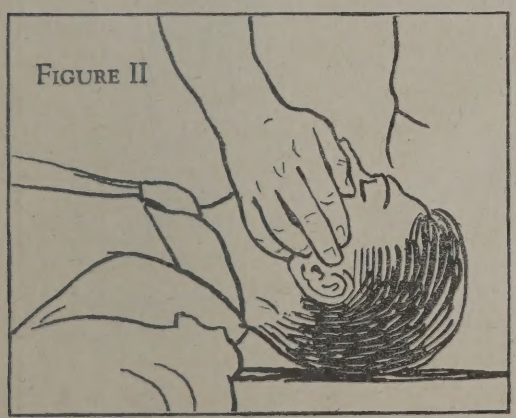


FIGURE II

Bleeding of the head above the eyes. Press just in front of the ear.

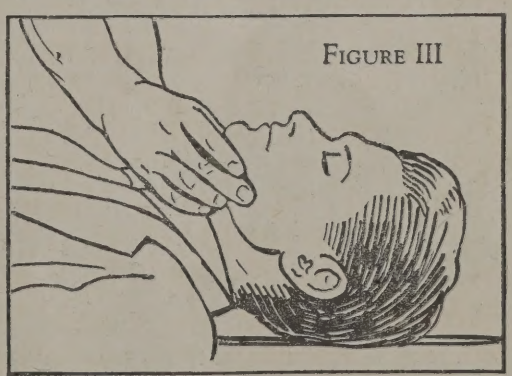
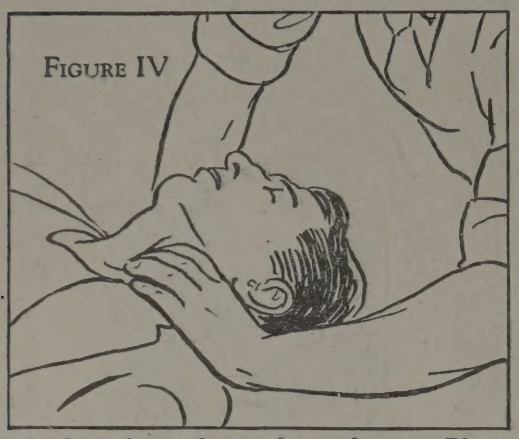


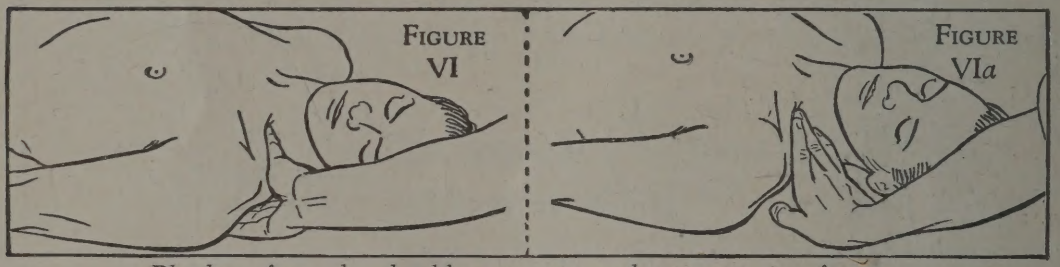
FIGURE III

Bleeding of the cheek below the eyes. Press in the notch on the side of the jawbone which is 1 inch to 1½ inches in front of the angle of the jaw.

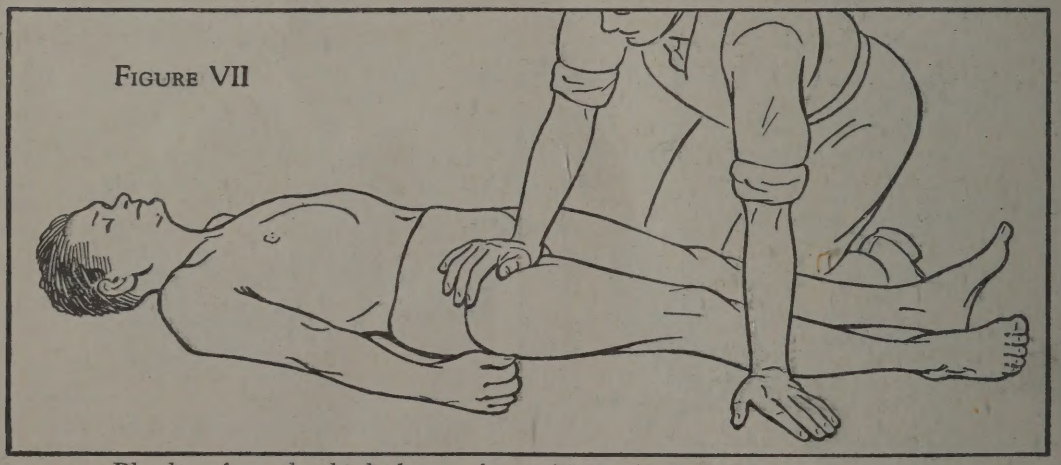


Bleeding from the neck or throat. Place your thumb against the back of the victim's neck and your fingers in the depression at the side of the windpipe (not over it), with one finger above the wound and one finger below it. Press the fingers and thumb toward each other.

Bleeding from the lower two thirds of the arm, and hand. Place your fingers halfway between armpit and elbow, on the inside of the arm, and press fingers and thumb toward each other with the arm bone between. (If the arm is fat, place your hand underneath it.)



Bleeding from the shoulder, armpit, and upper part of arm. Place your thumb or fingers in the hollow behind the victim's collarbone, and press against the upper surface of the first rib.



Bleeding from the thigh, leg, or foot. Place the heel of your hand just below the victim's groin at the point indicated, and press downward.

Use of a Tourniquet

So many serious results, including the necessity of amputating a limb, have followed the use of a tourniquet that only when the pressure methods just described fail to check bleeding from one of the limbs should a tourniquet be applied. If it is necessary to use a tourniquet, tell the doctor that you have done so as soon as he arrives. Any fairly wide flat band long enough to go twice around the limb will serve as a tourniquet. A triangular bandage folded in the form of a cravat, a necktie, stocking, or strip of cloth torn from clothing may be used. Do not use cord, rope, or wire.

The two places to apply a tourniquet are (1) a handbreadth below the armpit for bleeding from the arm (Figure VIII) and (2) a handbreadth below the groin for bleeding from the thigh or leg. Wrap the tourniquet around the arm or leg over a firm (but not hard) pad placed on the inside of the arm to protect the artery and distribute pressure. Several thicknesses of gauze or a folded handkerchief may be used for the pad. Tie the tourniquet with a half knot, and then tie a small stick with a square knot over the first one. Tighten the tourniquet by twisting the stick. Do not twist too hard—just enough to stop the bleeding. Loosen the tourniquet every 15 minutes to let blood circulate in the limb below the tourniquet. Gangrene may develop if the blood supply of the limb is blocked off too long. While the tourniquet is loosened, control bleeding by pressure on the compress over the wound. If severe bleeding does not begin again within one minute after loosening the tourniquet, do not retighten it but leave it in place ready to tighten again in case the bleeding returns. *Never cover the tourniquet with bandages or blankets.*

If a victim is taken to a hospital before a physician arrives, write TK on his forehead with iodine, lipstick, soft pencil, or crayon, and also the time the tourniquet was applied. By doing this, the persons in charge of the victim will know when the tourniquet must next be loosened.

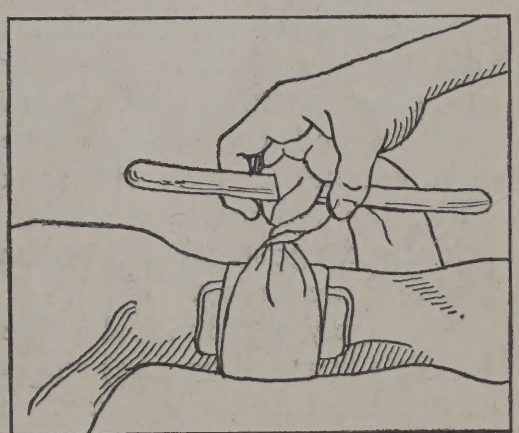


FIGURE VIII. *How to apply a tourniquet to the arm*

If for any reason severe bleeding cannot be checked by

pressure on a pressure point or by the application of a tourniquet, do not hesitate to press with the fingers directly over the bleeding point. Replace the fingers, as soon as possible, with a sterile gauze compress, a freshly laundered handkerchief, or other sterilized material.

INTERNAL BLEEDING

Internal bleeding resulting from wounds of the internal organs, such as the brain, lungs, stomach, and intestines, cannot be seen. It causes weakness, pallor, faintness, feeble and irregular breathing, and, usually, loss of consciousness. While waiting for a doctor, treat as for shock (see pages 1–2) *but give no stimulants.*

PREVENTING INFECTION IN WOUNDS

Every break in the skin carries with it the danger of infection. Germs may be present on the skin, fingers, clothing, and unclean dressings, and in droplets sprayed from the mouth or nose in sneezing, coughing, laughing, or talking. Do not touch a wound with cloth which is not sterile (free of germs) or with the fingers unless bleeding can be stopped in no other way, and do not cough, sneeze, or breathe into a wound.

The cleansing and disinfection of all serious wounds should be left to the doctor. First aid stops with the checking of the bleeding, the application of a sterile dressing, and measures taken to prevent or lessen the severity of shock.

For small wounds like cuts and scratches, which probably will not be seen by a doctor, first paint the wound with an antiseptic, such as mild tincture of iodine (2-percent solution), and when the iodine is dry, cover it with a sterile (germ-free) cloth pad, or compress.

If iodine is the antiseptic selected, remember that the iodine solution becomes stronger with age owing to the evaporation of alcohol. Therefore, old solutions should not be used. In purchasing iodine, ask the druggist for a 2-percent solution, as ordinary tincture of iodine is too strong.

A supply of individual sterile gauze compresses in sealed packages (for sale at any drugstore) should be kept in the first-aid kit or medicine cabinet in every home. If such compresses are not at hand, scorch a piece of clean, unstarched cloth with a hot iron. Old pieces of linen so treated make good compresses.

A sterile compress becomes nonsterile (contaminated) when it is touched with the fingers or any object not sterilized. Hence, in unfolding or unrolling the compress, take care to touch only the outer surface and place the inner untouched surface over the wound. Make sure that the compress is large enough to cover the wound completely. Hold it in place by a bandage or adhesive tape.

FIRST AID FOR SPECIAL KINDS OF WOUNDS

Punctured and Lacerated Wounds

Deep wounds caused by narrow, pointed instruments, such as nails, ice picks, scissor blades, and pitchfork tines; lacerated, or torn, wounds; and wounds caused by explosions of gunpowder, are particularly dangerous. Germs lodged in a wound of this kind cannot be reached and destroyed by an antiseptic, and the wound is almost sure to become infected unless it is cleaned out by a physician.

The germs of lockjaw (tetanus), which thrive without the presence of oxygen, are especially apt to multiply and manufacture toxin (poison) in deep wounds with narrow or sealed openings, and in lacerated wounds with crannies or pockets from which air is shut out. Besides treating the wound itself, the physician may wish to give tetanus antitoxin. Tetanus antitoxin must be given immediately to insure its effectiveness.

Tetanus Immunization. Tetanus is caused by a germ which is found in animal manure, or in soil where animal manure has been thrown. It is a common inhabitant of the soil in many localities. Persons whose occupations expose them especially to contaminated soils or to the danger of contracting punctured or lacerated wounds—for example, farmers, dairymen, soldiers, and workers in certain industries—may be immunized against tetanus by the injection of tetanus toxoid.

Snake Bite

Prompt action is important in every case of poisonous snake bite. The bite of a poisonous snake is rapidly followed by severe pain and, within 10 minutes, by swelling. Always get a physician as soon as possible, but in the meantime give first aid.

First Aid. Have the victim lie down and remain quiet. Apply above the wound a constricting band just tight enough to make the

veins "stand out" (see Figure IX) to keep the poison from spreading. Use whatever is at hand for the constricting band—a handkerchief, a piece of cloth, a necktie, or the like. Loosen it every 15 minutes. With the tip of a knife or razor blade, which has been passed through the flame of a match, if possible, make a crosscut, in the shape of the letter X, from ⅛ inch to ¼ inch in depth over each fang mark, preferably connecting the punctures. The crosscut should be deep enough to produce bleeding, but care should be taken not to sever large blood vessels. Then apply suction to suck out the poison.

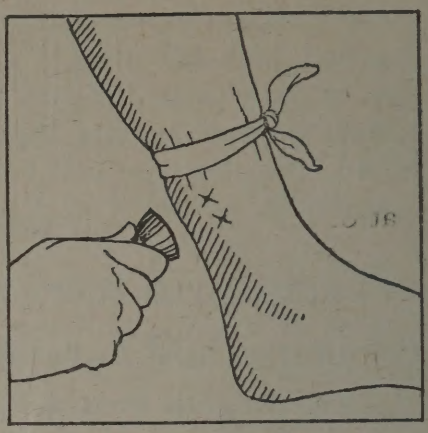


FIGURE IX. *Squeeze out all the air possible from the suction device and place its mouth over the crosscuts.*

Several small devices for applying suction are available and may be carried in any first-aid kit. A simple suction device is pictured in Figure IX. When a special device is not available, use a wide-mouthed bottle, glass, or cup from which the air has been exhausted by burning a match or a small piece of paper in it, or apply suction by mouth and spit out the fluid obtained. Continue suction for a full half-hour.

An antitoxic serum, known as antivenin, may then be given to counteract the effect of the poison if it is available, and if the person giving first aid has been trained in the method of administering it.

Animal Bite

In all cases of animal bite there is a possibility that rabies, or hydrophobia, will develop. Rabies is spread mainly by the bite of rabid, or mad, dogs; but cats, squirrels, coyotes, cows, horses, swine—in fact, any warm-blooded animal—may have the disease and give it to human beings in the same manner. Rabies is always fatal once it develops. Its development usually can be prevented by the Pasteur antirabic treatment.

The prevention of rabies *after a mad-animal bite* is possible, because it usually takes a comparatively long time for the disease to develop after infection. In man the average incubation period is from 50 to 60 days. However, the closer the wound is to the brain, the more quickly the symptoms of rabies may appear. Hence bites on the head and neck are the most dangerous.

First Aid. First wash the wound under running water to remove the animal's saliva. Then go to a physician immediately so that he may give the wound the further treatment which is needed and decide whether to give the Pasteur treatment. This preventive treatment should be given in every doubtful case. It should be started at once if the bite is on the head or neck.

The Dog. In case of dog bite, spare no effort to capture the dog but do not kill it, unless it is absolutely necessary to do so in order to protect others. After capture, turn the dog over to the city health department to be watched, or shut it up yourself for 14 days. If the dog remains well you may be sure it is not mad, and there is no danger from the wound, except the usual danger of infection common to all wounds. If the dog dies or is killed, pack its head in a pail of ice and send it to the nearest health department laboratory for examination. Should it be discovered that the dog was mad, the victim of its bite must be given the Pasteur treatment at once, and dogs known to have been associated with it must be placed in strict quarantine.

ARTIFICIAL RESPIRATION

Any injury which interferes with the delivery of oxygen to the body cells causes asphyxiation. A person may be asphyxiated in a number of different ways—for example, by choking, submersion, electric shock, or inhaling carbon monoxide (see pages 12–15).

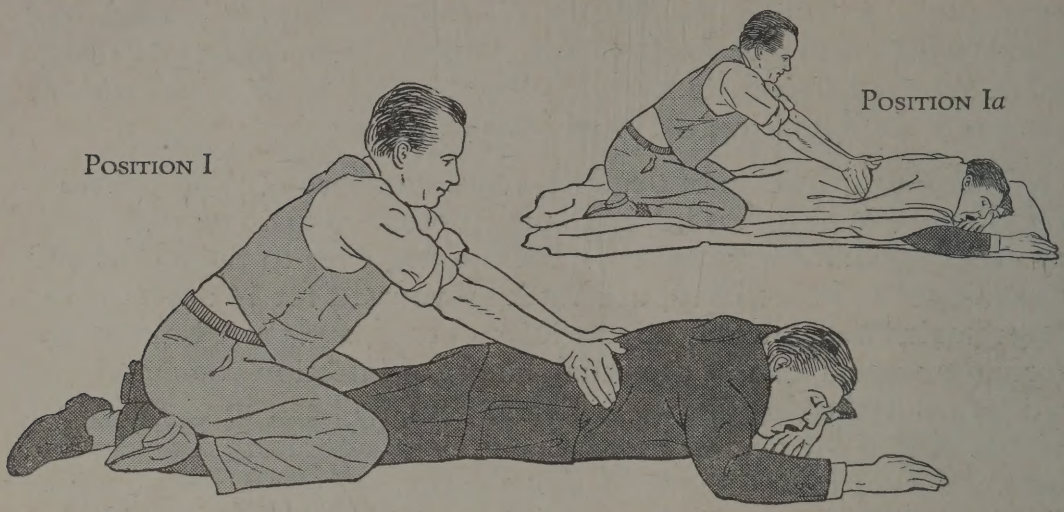
Signs. A victim of asphyxiation is not breathing, or breathes only with great difficulty. To restore natural breathing, artificial respiration must be administered *immediately after rescue.* (For special caution *see* Chemical Lung-irritant Gases Inhaled, page 15.)

The Prone-pressure Method of Artificial Respiration*

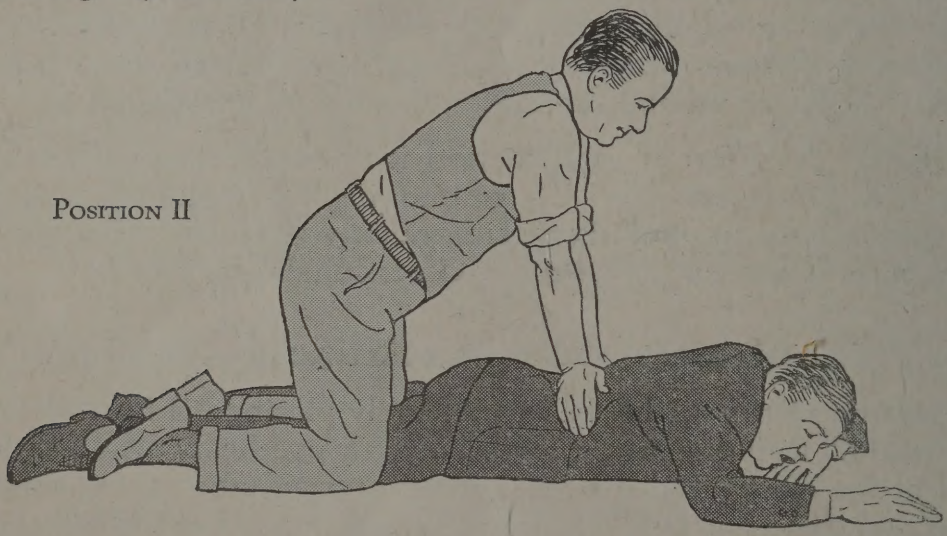
Lay the victim on his belly, preferably placing his head slightly "downhill," with one arm extended directly overhead, the other arm bent at the elbow, and the face turned outward and resting on the hand and fingers so that the nose and mouth are free for breathing (Position I). Quickly explore the mouth for any obstruction—chewing gum or displaced false teeth, for example—that would interfere with

*The method here given has been approved by the following organizations: United States Bureau of Mines, United States Public Health Service, United States Bureau of Standards, American Telephone and Telegraph Company, American Red Cross, American Gas Association, National Safety Council, Edison Electric Institute, Bethlehem Steel Company, Bureau of Medicine and Surgery of the Navy Department, and Office of the Surgeon General, War Department.

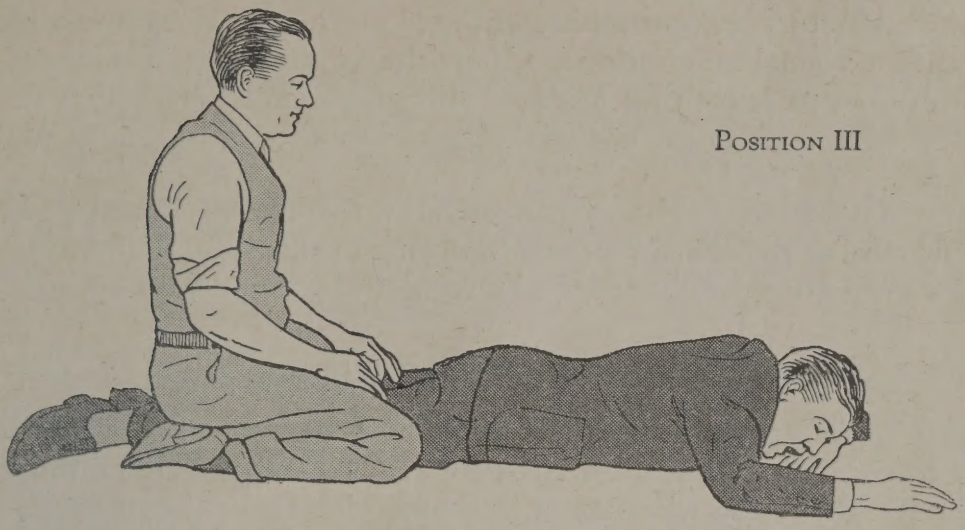
the passage of air, and have an assistant loosen any constriction or tight clothing about the victim's neck, chest, or waist.



Kneel straddling the victim's thigh on the side toward which the face is turned. Place the palms of your hands on the small of the victim's back, with your fingers resting on the ribs, the little finger just touching the lowest rib. The tips of your fingers should be just out of sight (Position I).



With your arms held straight, swing forward slowly, so that pressure is gradually brought to bear upon the victim. The point of your shoulder should be directly over the heel of your hand at the end of the forward swing (Position II). Do not bend your elbows. This operation should take about two seconds.



Position III

Now, swing backward immediately, so as to remove the pressure completely (Position III). After two seconds, swing forward again. Repeat 12 to 15 times a minute, the double movement of pressing and letting go, making a complete respiration—forcing out and drawing in air—every four or five seconds.

Continue without interruption until the victim breathes naturally —if necessary, four hours or longer—or until a physician declares the victim is dead.

Keep the victim warm. Put coats or blankets under and over him (Position I*a*), and apply external heat while keeping up the rhythm of artificial respiration. Do not give any liquids whatever by mouth until the victim is fully conscious.

To avoid strain on the heart when the victim revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the victim has revived, the latter should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water or a drink of sweetened hot coffee or tea. Do not give an alcoholic beverage.

Resuscitation should be carried on at the nearest possible point to the place where the victim was rescued or found. He should not be moved from this place until he is breathing regularly, and then he should be moved only in a reclining position. Should it be necessary, because of weather conditions or for any other reason, to move the victim before he is breathing normally, artificial respiration must be kept up during the time that he is being moved.

A brief return of natural breathing is not a certain indication for stopping artificial respiration. Often the victim, after a temporary recovery, stops breathing again. The victim must be watched; if natural breathing stops, artificial respiration should be begun again at once.

If it is necessary to change the operator, this change must be made without losing the rhythm of respiration. In this way, no confusion results at the time of change, and a regular rhythm is kept up.

COMMON CAUSES OF ASPHYXIA

Asphyxia may be caused in a number of different ways. Some of the more common ones are as follows: (1) Obstruction of the air passages either from without, as in smothering and strangulation, or from within, as in choking and submersion, so that air cannot reach the lungs. (2) Paralysis of the respiratory center of the brain, as in electric shock, the swallowing of drugs which act as nerve poisons, and the breathing of excessive amounts of anesthetic gases like chloroform, so that the breathing muscles cannot work. (3) Interference with the oxygen-carrying function of the red blood corpuscles, as in the inhalation of a gas which acts as a chemical asphyxiant—for example, carbon monoxide. (4) Lack of oxygen in the air breathed, as in old wells, mines, storage bins, or airtight vaults, where oxygen has been replaced by carbon dioxide through the process of oxidation.

Choking and Strangulation

Rescue by quickly cutting any constriction around the neck or, if something is lodged in the throat or windpipe, by passing a finger into the throat and hooking the finger around the object in order to remove it. If the object is deeper down and cannot be removed by the finger, slap the victim vigorously on the back between the shoulder blades. While you are doing this, the victim can assist by lying crosswise on a bed on his abdomen with his head and shoulders hanging over the side. If the victim is a child, hold him upside down by the heels and slap his back.

First Aid. Send for a doctor at once, or rush the victim to a doctor's office or hospital, if these measures do not work. If, after the object has been removed, the victim is not breathing, start artificial respiration immediately.

Submersion

Asphyxia is caused by a water-logged condition of the lungs which prevents the entry of air. The majority of drownings occur close to shore, so that it is usually possible to save a drowning person without endangering the life of the rescuer. If possible, throw a rope or life buoy to the victim, or use a boat, if available, or a plank or anything that is buoyant. Do not attempt to swim to the rescue unless you have been trained in life saving.*

First Aid. If a person rescued from drowning is not breathing, start artificial respiration at once (see pages 9-12) and send someone for help. Do not waste time in an effort to empty water out of the victim.

In numerous cases, breathing has been restored only after several hours of artificial respiration. Be sure to keep the victim warm and insist on complete rest for some time after the victim begins to breathe naturally.

Electric Shock

Electric shock occurs when an electric current passes through a person's body from a conductor of electricity to a ground. The conductor may be an electrically charged wire or rail, or faulty electrical equipment. When a person is struck by lightning his own body acts as the conductor. The victim of electric shock suffers sudden loss of consciousness, stoppage of breathing due to paralysis of the respiratory center in the brain, and possibly severe burns.

Rescue. Contact must be broken immediately between the victim and the electrical conductor. Do not touch the victim's skin or clothing (which may be damp with perspiration) with your bare hands while he is still in contact with the current. It is as dangerous for you to touch his skin or his clothing, if it is damp, as to touch the wire or rail itself. Turn off the current if you are near the switch or powerhouse. If this cannot be done, stand on a folded dry coat or on newspapers or a dry board, and with one hand protected with several thicknesses of dry cloth or newspaper or with tested rubber gloves grasp a dry part of the victim's clothing and drag him away

*Communicate with the local chapter of the American Red Cross if you wish to take a course in life saving. The life-saving methods recommended by the American Red Cross are described in the book *Life Saving and Water Safety* published by that organization.

from the conductor. It may be possible to push a live wire off the victim with a dry wooden stick, or to pull the victim off a live wire or rail with a piece of dry rope or handkerchief looped over his foot or hand.

First Aid. After contact has been broken with the electrical conductor there is no danger of shock in touching the victim. A person who has been struck by lightning may be touched at once, since the electric charge has been expended into the ground. If the victim is not breathing, start artificial respiration immediately (see pages 9-12) and have a physician summoned. Apply dressings to the burns, if there are any (see pages 18-19), after the victim has been revived.

Inhalation of Carbon Monoxide

This odorless, deadly gas combines with the oxygen-carrying pigment (hemoglobin) of the red blood corpuscles more rapidly, more easily, and more firmly than oxygen can. Hence it causes asphyxiation by keeping the blood corpuscles from taking up oxygen from the air breathed in.

Manufactured gas used for lighting, cooking, and heating contains carbon monoxide. It may escape from ill-fitted gas water heaters and gas stoves, loose gas fixtures and valves, leaky gas tubing, and gas furnaces not connected to outdoor air by flues. Many people think that accidental asphyxiation from manufactured gas occurs only when there is a leak. This is not true, as carbon monoxide may be given off when the gas is burning. Natural gas, which normally does not contain carbon monoxide, may produce it when the flame comes in contact with cold metal, as when a large boiler of water is put over a gas flame.

Carbon monoxide is also produced in the burning of all carbon-containing substances, such as coal, oil, wood, and gasoline, when there is not enough oxygen present for complete combustion. It is present in the smoke from burning buildings; in the fumes from coal stoves or furnaces, especially when they have been banked for the night; and in the exhaust fumes from automobiles. It is important to guard against the accumulation of carbon monoxide in enclosed places, such as bedrooms and garages, by providing adequate ventilation. The motor of an automobile should never be started in the garage when the door is closed.

Rescue. In rescuing a victim of carbon-monoxide asphyxiation, make sure that you protect yourself against the gas. If a protective mask is on hand, use it. If not, tie a rope around your waist and instruct someone on the outside to hold the other end and rescue you in case you fall. ***A wet cloth tied over your mouth and nose is useless.***

First Aid. Get the victim to fresh air at once. If breathing has stopped or comes in gasps, start artificial respiration (see pages 9–12), and continue until natural breathing is restored or until the doctor pronounces him dead.

The recovery of a victim of gas asphyxiation is favored by administering oxygen or, better still, a mixture of oxygen and carbon dioxide. The carbon dioxide stimulates faster and deeper breathing while the oxygen is driving the carbon monoxide out of the blood. Police and fire departments and some hospitals have oxygen-carbon dioxide inhalators. Send for one, if possible, but remember that the inhalator will not restore breathing in an asphyxiated person. Artificial respiration must be started and continued until the victim breathes naturally. Then he should be allowed to continue breathing through the inhaler of the inhalator until he is fully conscious.

During the process of resuscitation and for some time afterward keep the victim warm and aid circulation by rubbing the limbs toward the heart. Insist on complete rest for some time after natural breathing begins. Even slight exercise is dangerous.

CHEMICAL LUNG-IRRITANT GASES INHALED

Some gases which may be inhaled, such as certain industrial gases and war gases, have an irritant or corrosive action on the respiratory tract. Among them are ammonia fumes, nitrous fumes, hydrogen sulphide, chlorine, phosgene, and mustard gas. Persons who have been exposed to irritant gases must be made to lie down at once and keep absolutely quiet. The action of some of these gases may be delayed, and the victim may show few or no symptoms immediately after exposure. However any exertion whatever, even sitting up, may have serious or even fatal results. Since an irritant gas inflames the lungs, it is dangerous to give artificial respiration. Under no circumstances should it be resorted to unless the victim has stopped breathing, and then only with great caution.

CHEMICAL POISONS SWALLOWED

The signs and symptoms of poisoning caused by swallowing a poisonous substance vary with the poison taken. Nausea, vomiting, pain, diarrhea, collapse, and convulsions are some of the possible immediate effects. Sometimes the victim becomes unconscious. When a poison has been swallowed, it may be possible to determine its nature from an examination of the surroundings or from what the victim tells you. But do not lose time trying to discover what the poison was. Every moment of delay means that more and more of the poison is being absorbed into the system. Unless prompt action is taken, the victim may soon be beyond help. Call a physician at once and, while awaiting him, start first aid.

First Aid. Dilute the poison and wash out the stomach by inducing vomiting, unless a strong acid or caustic alkali in concentrated form has been swallowed or the victim is unconscious. Both of these measures are accomplished by giving the victim an emetic. An emetic is a substance that causes vomiting. Emetics which may readily be prepared in practically every household are as follows:

1. Warm salt water—1 tablespoonful of table salt to one glass of warm water.
2. Warm mustard water—1 teaspoonful of dry mustard to one glass of warm water.
3. Soapy water—a piece of mild soap shaken up in warm water to make a good suds.

If it is necessary to induce vomiting after the victim has swallowed several glassfuls of the emetic, tickle the back of his throat. Vomiting should be induced repeatedly until the fluid coming from the stomach is clear.

In addition to diluting the poison and getting it out of the stomach by inducing vomiting, an antidote may be given if it is known and on hand. An antidote is a remedy which counteracts (works against) the poison. The antidote for many of the ordinary household preparations containing poisons is given on the label.

In all cases keep the victim warm and quiet after everything possible has been done to remove or counteract the poison. A soothing drink, such as the raw whites of two or three eggs in a little water, one or two glasses of milk, or a thin paste of starch or flour and water should be given if the victim can swallow. A stimulating

drink, such as hot coffee, may be helpful. If the victim has stopped breathing, give artificial respiration at once (see pages 9–12).

First Aid for Some of the Poisons Most Commonly Taken

Acids, Strong—Hydrochloric, nitric, sulphuric, etc. (*See under* Alkalis.)

Alkalis, Caustic—Ammonia, caustic lime (quicklime), caustic soda, caustic potash, lye, etc.

The victim's lips, mouth, and tongue are stained and burned. Usually it is unwise to force vomiting if the poison was taken in concentrated form, for fear of rupturing the corroded walls of the esophagus and stomach. After diluting and counteracting the poison as described below, give a soothing drink, such as a wineglassful of olive oil, a glass of milk, or flour and water.

To dilute and counteract an acid swallowed, give two glassfuls of diluted milk of magnesia, or two tablespoonfuls of baking soda in a pint of water, or finely divided chalk in water, or lime in water (if necessary, scrape plaster off the walls, powder it, and mix it with water).

To dilute and counteract a caustic alkali swallowed, give a wineglassful of vinegar or the juice of four lemons in a pint of water.

Arsenic and Preparations Containing Arsenic—Insect poisons, rat poisons, Paris green, etc.

Induce vomiting repeatedly by giving several glassfuls of warm mustard water or warm salt water. In the meantime, send to the drugstore for freshly prepared hydrated oxide of iron and magnesia, the official arsenic antidote. When it comes, give the victim a wineglassful and induce vomiting again.

Bichloride of Mercury—Corrosive sublimate

Give the whites of from three to five eggs *immediately,* and then induce vomiting repeatedly by giving warm mustard water or warm salt water.

Carbolic Acid—Phenol and preparations containing it

Immediately give soapsuds or two tablespoonfuls of Epsom salts in a pint of water, and follow with enough lukewarm water to induce vomiting. Then give flour and water to soothe the injured tissues. Do not give oils or fats.

Alcohol checks the caustic action of carbolic acid, and skin burns caused by it should be washed with diluted alcohol, whisky, or brandy. But alcohol should not be given for carbolic acid taken internally, since it hastens the absorption of the poison.

Iodine

Give several glassfuls of a thin paste of starch in water or flour in water and induce vomiting until the vomited material no longer has a blue color.

Phosphorus—Rat poisons which contain phosphorus

Induce vomiting by giving several glassfuls of warm mustard water. If copper sulphate is on hand or can be obtained quickly from a drugstore, a weak solution consisting of a scant penknife-pointful of copper sulphate (3 grains) in a tumbler of water should be given every 15 minutes until vomiting occurs. The copper sulphate forms a coating over the phosphorus so that it cannot be absorbed. Then give lukewarm water and induce vomiting again to get the coated phosphorus out of the stomach. Do not give oils or fats.

Sleep-inducing Drugs—Opium, morphine, codeine, chloral hydrate, etc.

If the victim is conscious, induce vomiting by giving several glassfuls of warm mustard water. If potassium permanganate crystals are available or

can be obtained quickly from the drugstore, mix a penknife-pointful (about 4 grains) in a pint of water, stir and strain, and have the victim swallow it a glassful at a time. Induce vomiting again. Keep the victim awake if possible. Give strong black coffee as a stimulant. Give artificial respiration if breathing stops.

Strychnine—Nux vomica, medicines and vermin-killers containing strychnine

Administer one tablespoonful of powdered charcoal in water or one pint of potassium permanganate solution prepared according to the directions given under sleep-inducing drugs. *Keep the victim very quiet* in a dark room remote from all noises. Do not give a stimulant, as doing this is apt to bring on convulsions.

FIRE

If fire starts in your house or in a neighboring house, give the alarm promptly. Close doors, windows, and transoms to prevent a draft. If a fire extinguisher is handy, use it. If not, and the blaze is small, try smothering it with sand, a coat, rug, or blanket, or use water unless the fire is in oil, grease, or gasoline. The latter type of fire can only be smothered. To extinguish blazing grease in a frying pan, use a broom handle to maneuver a pot cover into position over the pan and then throw a wet towel over the whole.

In escaping from a smoke-filled building, remember that the purest air is to be found near the floor and it is safest to crawl. In case persons rescued from a burning building have stopped breathing, administer artificial respiration at once (see pages 9-12).

BURNS AND SCALDS

Burns are classified and cared for according to the degree of injury to the body tissues. In first-degree burns, the skin is reddened and unbroken. To relieve pain apply a paste of baking soda in water, tannic acid jelly, or petrolatum, and cover the burned area with sterile gauze.

In second-degree and third-degree burns, the skin is blistered and broken and danger of infection is great. A doctor should always be consulted. Do not use any oily or greasy substances on a burn in which the skin is blistered or broken, as this increases the danger of infection and interferes with the doctor's treatment. Tannic acid jelly, gentian violet jelly, or a paste or solution of baking soda are all safe to use.

With extensive burns, no matter what the degree, the victim develops severe shock (*see* Shock, pages 1-2), and no time should be lost in placing him under the care of a physician. While waiting for the physician, cover the burned area with several layers of sterile gauze

or freshly laundered cloth wet with a slightly warm solution of baking soda (2 or 3 heaping tablespoonfuls of baking soda to a quart of water). Then wrap the victim in blankets and keep him quiet.

Chemical Burns

Chemical burns are caused by chemicals such as strong acids and alkalis. *Immediately* strip off all clothing which has come in contact with the chemical and flood the skin with *large quantities of clean water.* Then give first aid according to the degree of the burn (see page 18). If there has been any delay in giving first aid, do not use water. Get medical aid at once.

EXPOSURE TO HEAT AND COLD

The three conditions likely to result from prolonged direct exposure to the sun's rays or to intense heat indoors or out are sunstroke (heatstroke), heat exhaustion, and heat cramps. Although these three conditions have practically the same cause, they have different signs and symptoms and require different first-aid handling.

Sunstroke or Heatstroke

The effects of sunstroke and heatstroke are about the same.

Signs and Symptoms. The victim feels dizzy, sometimes becomes nauseated, and has acute pain in the head. In true heatstroke or sunstroke, these symptoms are rapidly followed by unconsciousness. The victim's skin is dry and hot, and his face red or purple. He breathes with difficulty, his pulse is rapid, and he has a high fever.

First Aid. Call a doctor. Remove the victim to a cool, shady place; lay him on his back, and remove as much clothing as possible. Apply an ice bag or cold cloths (iced if possible) to his head. To reduce his temperature wrap him in a sheet and spray or sprinkle it repeatedly with cold water, or sponge his body with cold water. *Give no stimulants.*

Heat Exhaustion

This condition may occur during protracted heat waves or in foundries, kitchens, bakeries, engine rooms, and similar places where heavy work is done in high temperatures.

Signs. The victim is very pale, his skin cold and moist, his

breathing rapid and shallow, and his pulse weak and rapid. The body temperature may be subnormal or slightly elevated. The victim is usually conscious.

First Aid. Call a doctor. Lay the victim in a cool, quiet place, in a reclining position. Loosen his clothing. Keep him warm with blankets and hot water bottles, or by other means. If conscious, give him a stimulant—tea, coffee, or aromatic spirits of ammonia (½ teaspoonful in ½ glass of water). It may also be helpful to give him sips of salt water (1 teaspoonful of salt to 1 pint of water).

Heat Cramps

Stokers, miners, steel workers, and others who are exposed to intense heat and profuse perspiration may develop heat cramps. The cause is excessive loss of water, salt, and other elements as a result of profuse perspiration.

Signs. The onset is usually sudden. Spasms involve successively groups of muscles of the extremities or of the abdominal wall, and may occur intermittently for 24 hours, seldom longer.

Prevention and First Aid. Heat cramps in the majority of instances may be prevented by drinking slightly salted water when exposed to excessive heat. Salt tablets are now commonly dispensed in industrial establishments with high-heat hazards.

When heat cramps develop, call a doctor. Give the victim salt—a little at a time, with several swallows of water until 1 tablespoonful has been given—or sips of salt water (1 teaspoonful of salt to 1 pint of water).

Frostbite

Signs of frostbite are whiteness and numbness of the flesh; the skin feels cold to the touch.

If the victim of frostbite cannot immediately find shelter, cover the frozen part with clothing or with the hand or other body surface until circulation is restored. A frozen hand may be tucked under the armpit or between the thighs. When the victim reaches shelter, thaw out the frostbitten areas gradually by bathing the part gently with cold water. Avoid exposure to heat from a stove or radiator. *Do not rub the area, especially not with snow or ice,* as frozen tissues are easily bruised or torn and gangrene may result.

UNCONSCIOUSNESS

Unless all the circumstances are known, it is sometimes very difficult to determine the cause of unconsciousness. Certain cases, notably skull fracture, apoplexy, and drunkenness, are frequently confused. If a person found unconscious smells of alcohol, for example, he may be treated as a case of common drunkenness, whereas actually he may have had a stroke of apoplexy or suffered a skull fracture. In all doubtful cases, keep an unconscious person lying down, warm, and quiet until medical aid can be obtained.

Some common causes of unconsciousness are the following:

Fainting

Fainting usually results from some emotional shock, such as fear or bad news, but may accompany slight injuries, the sight of blood, exposure to overheated rooms, a want of food, or fatigue.

Signs. A person about to faint becomes dizzy and weak and turns pale. He either sinks into a chair or falls unconscious.

First Aid. If you notice that a person is going to faint, you can sometimes revive him by bending his head down between his knees. If he does not improve, lay him flat on his back and lower his head by shoving a folded coat or blanket under his hips or by raising his feet and legs. Loosen all clothing around his neck and waist. See that he gets plenty of fresh cool air. Hold smelling salts or a handkerchief containing a few drops of aromatic spirits of ammonia under his nose every minute or two. When consciousness returns, the person should continue to lie quiet for a while before getting up. If the faint lasts for more than a few minutes, send for a doctor.

Apoplexy

Apoplexy is commonest in elderly people. It is caused by the rupture of a blood vessel in the brain.

Signs. The victim is unconscious and snores in breathing. His face is usually red and his pulse strong but slow. The pupils of the eyes are usually unequal in size, and one side of the body or one limb is more limp than the other. The mouth may be drawn to one side.

First Aid. Send for a doctor. Lay the victim on his back and raise his head and shoulders. Apply cold cloths or an ice bag to his

head. If the victim vomits, turn his head to one side so that he will not choke. *Do not give stimulants.*

Epilepsy (Fits)

The cause of epilepsy is not known.

Signs. At the beginning of an epileptic fit the victim falls forcibly and loses consciousness. He may stop breathing momentarily and turn blue. The fit is marked by strong jerking movements of some or all of the muscles, and often there is frothing at the mouth. The blue color quickly passes off.

First Aid. Send for a doctor. *Do not try to restrain the victim's movements* more than is necessary to prevent him from hurting himself. Lay the victim on his back and loosen any tight clothing. Place a cloth pad or small stick wrapped in cloth between his teeth to keep him from biting his tongue. Remove anything from his mouth which might choke him. Keep him warm with blankets or coats. *Do not give artificial respiration during the blue stage.*

Diabetes

Unconsciousness of two quite different types may occur in diabetics. Persons with diabetes often carry a diabetic identification card and a lump or two of sugar. If a diabetic is found ill, give him sugar or sweetened fluids, and if this does not cause definite improvement within 15 minutes, call a doctor.

FRACTURES (Broken Bones)

A fracture, or broken bone, when there is no break in the skin, is a simple fracture. When there is a wound extending from the fracture to the surface of the skin, the injury is a compound fracture. Careless first-aid handling of a simple fracture increases the danger of shock, and may cause the splintered ends of the broken bone to cut through the tissues and skin, thus causing a compound fracture.

Fractures of the Arms and Legs

Signs. The victim complains of pain at the point of the break, and the pain is more severe on pressure or movement. He may not be able to move the limb. The broken ends of bone may be overlapping noticeably, or the injured limb may be shorter or bent when

compared with the uninjured side. Swelling is usually marked and appears quickly.

First Aid. When in doubt, handle the injury as a fracture. Send for a doctor. Keep the victim lying down and warm to combat shock. Stop severe bleeding if it is present (see pages 2-6), and then cover the wound with a sterile dressing. If it is necessary to move the victim, the limb must be splinted to keep the broken ends of the bone from moving about and doing further damage.

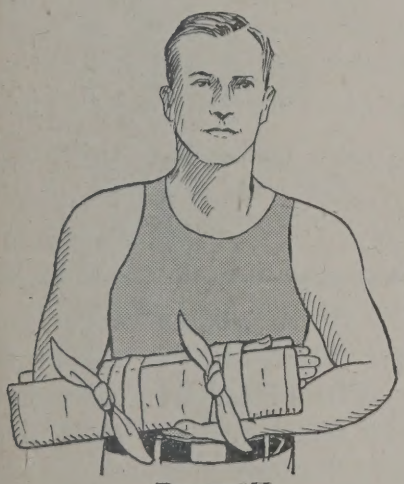


FIGURE X

Splint for a broken forearm or wrist. Complete by placing the arm in a sling (FIGURE X*a*).

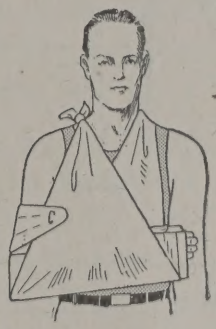


FIGURE X*a*.

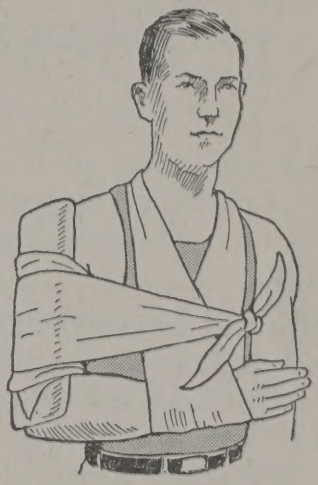


FIGURE XI

Splint and sling for a broken upper arm.

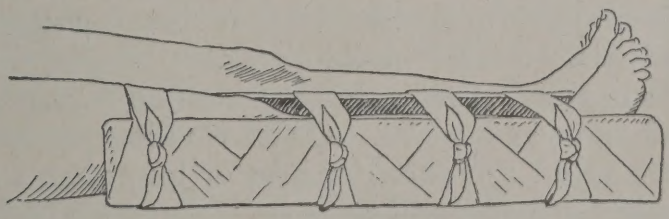


FIGURE XII. *Splint for a broken lower leg.*

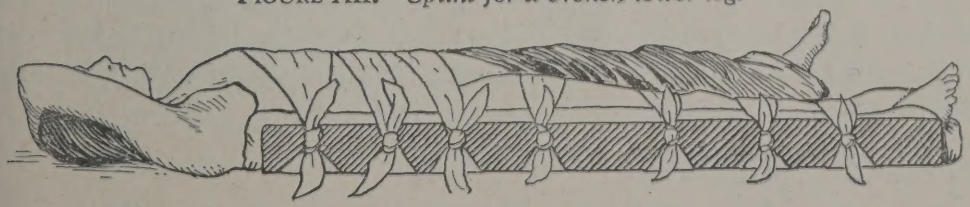


FIGURE XIII. *Splint for a broken thigh.*

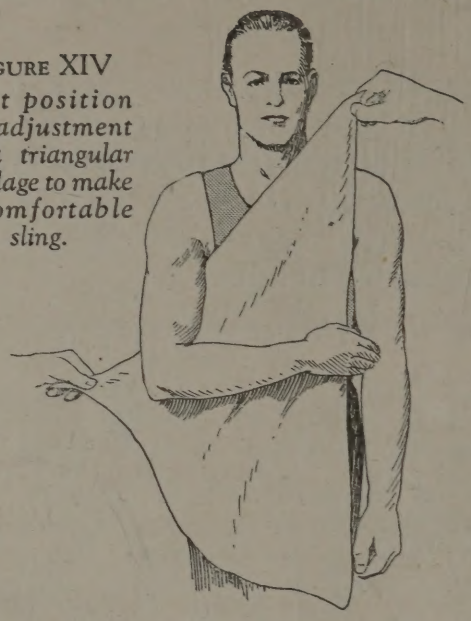


FIGURE XIV
First position for adjustment of a triangular bandage to make a comfortable sling.

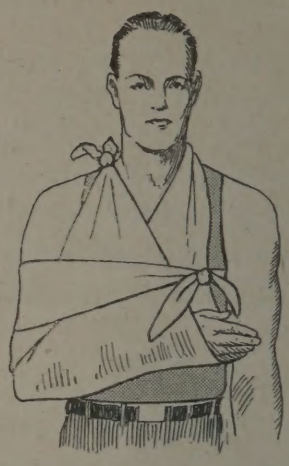


FIGURE XV
Completed sling for a fractured collarbone.

Splints. Fixed-traction splints are now considered to be the most effective splints for fractures of the limbs. Traction, or pull, at the end of a broken limb, when properly exerted by a fixed-traction splint, helps to keep the broken ends of the bone apart and in line and to prevent further injury to the soft tissues. However, fixed-traction splints, *unless applied by a physician or trained first-aid worker,* may do more harm than good.

If you have not received the necessary training or if fixed-traction splints are not available or cannot be improvised, use ordinary splints. Any rigid material—a light board or broom handle, for example—which is long enough to reach beyond the joints above and below the break will serve as a splint. Often a pillow or folded blanket can be used to splint a broken forearm or lower leg; a magazine or several layers of newspaper will serve as a splint for a broken forearm. The splint should be well padded with cloth or cotton on the side that goes next to the injured limb. Bandage the splint firmly but gently to the injured limb, but do not place bandages over the point of the fracture.

Fractured Collarbone

Signs. As the victim stands or sits straight, the shoulder on the injured side may hang much lower than the other shoulder.

First Aid. Place a large pad under the armpit. Make a triangular sling bandage from a piece of cloth about 3 feet square. Support the arm on the injured side by the sling as illustrated (Figures XIV and XV). Take the victim to a doctor.

Fractured Spine

This injury is extremely serious. Wrong handling may result in damage to the spinal cord, thus causing permanent paralysis.

Signs and Symptoms. Pain in the neck or back may be the only symptom. If the victim cannot move his fingers, his neck is probably broken. If he can move his fingers but not his feet and toes, his back is probably broken. Nevertheless, the victim may be able to move both his hands and feet and yet have a spinal fracture.

First Aid. Send for a doctor at once. Do not move the victim unless absolutely necessary. Keep him warm with blankets or coats and external heat. Do not let him try to sit up, and do not lift his head even to give him a sip of water.

If the victim of a broken neck must be moved he should be transported *face upward* on a door, a wide board 5 feet or more in length, a shutter, or a similar rigid support. If his back is broken he should be transported on the rigid support *face downward.* If the location of the spinal injury is unknown, transport him face upward.

Two or more persons will be needed to place the victim in the correct position onto the board or door. His body *must be moved as a unit,* with no tilting forward or backward of the head in case of neck fracture, and with no bending of the back in case of fracture of the spine below the neck. Transportation must be accomplished without jolts or jars, and the victim must be kept warm during the process.

Skull Fracture and Concussion of the Brain

If a person has received a severe blow on his head or has been knocked unconscious even for a very short time, a fracture of the skull or brain concussion should be suspected. Even though the victim of a severe blow on the head is conscious and no wound or bruise can be seen, he must be handled as a case of skull fracture or concussion of the brain.

First Aid. Send for a doctor. Lay the victim on his back, with

the head slightly elevated. Keep him warm and quiet. Give him nothing by mouth. Check severe bleeding, if present, by placing a gauze compress over the wound.

DISLOCATIONS (Bone Out of Place at the Joint)

Signs. The joint looks out of shape when compared with a similar joint, and its motion is limited.

First Aid. Send for a doctor. Do not try to put the bone back in place except in dislocations of the finger and lower jaw. For all other dislocations, as of the shoulder, elbow, knee, or hip, merely support the joint in a comfortable position. For pain, apply cloths frequently wrung out in very cold water.

To Replace a Dislocated Finger. Face the injured person and pull the end of the finger toward you. With the thumb and forefinger of the other hand, gently press on the dislocated joint until the bone slips into place. If the first attempt is not successful, see a doctor. ***Do not try to replace a dislocation of the joint at the base of the thumb.***

To Replace a Dislocated Jaw. Wrap your thumbs in several thicknesses of cloth to protect them from the victim's teeth. Then put your covered thumbs into the injured person's mouth, resting them on his lower teeth well back on each side, and grasp the jaw under the chin with your fingers. Press first downward and then backward with the thumbs, and upward under the jaw with the fingers. As the jaw closes, slip your thumbs off the teeth to the inside of the cheeks, so they will not be caught between the teeth when the jaw springs into place.

SPRAINS, STRAINS, AND BRUISES

Sprains

When the ligaments supporting a joint or connecting bones are torn, a sprain is the result. There is pain, swelling, and usually discoloration. What seems like a bad sprain may be a fracture. Therefore, a doctor should be called for a sprain, unless it is slight.

First Aid. Raise the injured joint, so that it will get less blood. Apply cold cloths or ice packs for several hours.

Strains

A strain is like a sprain, but it is the muscles, not the ligaments, which are injured.

Relieve the pain by putting the part to rest. The application of heat and light massage (rubbing the limb upward toward the body) are helpful. For a severe strain consult a doctor.

Bruises

A bruise is an injury usually caused by a fall or a blow. The skin is not broken, but the tissues under the skin are injured, resulting in the breaking of small blood vessels.

Signs. Pain, swelling, and black-and-blue marks. A black eye is a bruise.

Apply cloths wrung out in cold water or ice packs to relieve the pain and swelling. If the blow was severe, have a doctor examine the injured person.

FIRST AID FOR COMMON AILMENTS AND CONDITIONS

Boils. Boils result from an infection of the hair pits or oil glands in the skin. The germs responsible are especially apt to get a foothold on a skin surface constantly irritated by the rubbing of clothing —the neck, armpits, and buttocks, for example. Hot salt-water applications may be used to relieve pain. A doctor should always be consulted for a severe boil.

Earache. A doctor should be consulted as soon as possible for earache or for a discharging ear. Loss of hearing or mastoid infection may result if you neglect this. If there is delay in getting a doctor, the pain may be relieved by applying an ice bag or hot-water bottle.

Foreign Body in the Ear. Children sometimes put buttons, beans, or other small objects into the ear. Always have a doctor remove them, unless they drop out readily. If an insect enters the ear, put a drop or two of castor oil or sweet oil into the ear and see a doctor. Do not try to remove wax from the ears by poking with sharp instruments, such as matches, toothpicks, or hairpins. If wax is troublesome, consult a doctor.

Foreign Body in the Eye. A cinder, particle of dirt, or other foreign body lodged on the surface of the eyeball or eyelid may cause great distress. The greatest care should be used in removing it.

Instruct the victim not to rub the eye. Have him close it gently, in the hope that the tears may wash the speck out, or into view, so that it can be removed with the corner of a clean handkerchief. If this does not work, flush the eye with clean water or boric acid solution from an eye dropper. If still unsuccessful, press the lower lid down and look for the speck. If it can be seen, remove it gently with the corner of a clean handkerchief. If the speck cannot be seen or is embedded in the upper eyelid or on the eyeball, consult a doctor. A little sterile olive oil, mineral oil, or castor oil dropped into the eye after a speck has been removed is soothing.

If the eye is wounded by a foreign body like a splinter of glass, metal, or wood, or by a particle blown into it with great force, lightly bandage both eyes and get medical aid at once.

If acid, lime, or any other chemical enters the eye, *immediately* wash out the chemical then and there with great quantities of clean water. Do not use water if there has been any delay in giving first aid. Get medical aid at once.

Foreign Body in the Nose. Children may poke small objects up the nose as well as into the ears. If the object can be seen, it can usually be removed without much trouble, but if the first attempt is unsuccessful, see a doctor. The nose should not be blown forcibly.

Foreign Body Swallowed. If a person has swallowed some sharp article, like a piece of broken glass or a pin, consult a doctor. Do not give a laxative.

Foreign Body in the Windpipe. *See* Choking, page 12.

Insect Bites. The bite or sting of such insects as bees, mosquitoes, flies, or spiders often causes swelling and inflammation. To relieve the discomfort, apply weak ammonia water or a paste of baking soda and water.

Tick Bites. The tick is a blood-sucking insect prevalent in the spring and summer. It is responsible for the spread of several diseases, one of which is Rocky Mountain spotted fever. The danger of infection is somewhat lessened by the early removal of the insect.

The tick has a small toothed probe on the head with which it pierces the skin and fastens upon the flesh of its victim. In removing

the tick, make sure that the probe does not break off and remain embedded in the tissues. The insect may be induced to withdraw its probe by holding a hot needle or a lighted cigarette near its rear end. Then pick up the tick with forceps, tweezers, or a bit of cotton held between the fingers, and destroy it. Do not crush the tick between your bare fingers. After removal of the tick, paint the wound with iodine.

Ivy, Oak, and Sumac Poisoning

Poison ivy (common east of the Rocky Mountains) has leaves divided into three leaflets and grayish white berries in season.

Skin poisoning occurs in most people after direct contact with any part of the poison ivy, poison oak, or poison sumac plant. The skin becomes red and swollen, and an eruption of blisters occurs, accompanied by painful itching and burning. In severe cases, fever may be present.

Prevention. The only sure way to escape poisoning by these plants is to stay away from them. After exposure, thorough washing with soap and water often prevents poisoning if it is done soon enough. An additional precaution which many highly susceptible people have found effective is to wash the exposed skin areas first with a solution of trisodium phosphate ("oakite") in the proportion of 1 teaspoonful to 1 quart of warm water, and then with soap and water. In some instances, poison ivy extract administered by a physician may give temporary immunity against ivy poisoning.

Recently, the United States Public Health Service has developed a protective ointment for use by persons who must work where poison ivy is prevalent. This ointment, which any druggist can make, is composed of vanishing cream mixed with 10-percent sodium perborate. The ointment is effective for four hours; it must then be washed off and a fresh application made if the exposure is to be continued.

Poison sumac (a low tree found in boglands) has a compound leaf of from 7 to 13 leaflets and pale, waxy berries in season.

If skin poisoning develops after exposure, any one of the following applications may give relief: (1) soap paste allowed to dry on the poisoned area; (2) compresses soaked in a cold baking soda or Epsom

salts solution; (3) calamine lotion to which enough carbolic acid has been added by a druggist to make a 2-percent solution *or* a 5-percent solution of ferric chloride, applied with a cotton sponge, and allowed to dry on the skin. Lemon juice will remove the ferric chloride stain. In case of severe ivy, oak, or sumac poisoning, see a doctor.

Nosebleed. Slight nosebleed does no harm and usually stops by itself. Pressing the nostrils together for four or five minutes may help. Do not blow the nose for a while after the bleeding stops.

If bleeding continues, call a doctor at once. While waiting for him, put the victim in a chair and loosen his collar. Apply cloths wrung out in cold water over his nose. It may also help to plug with a bit of cotton the nostril from which the blood is coming.

Always call a doctor for nosebleed in babies or old people.

Styes. A stye is an infection of a hair pit or oil gland at the edge of the eyelid. Irritating the eyelids by frequent rubbing, as a person suffering from eyestrain may do, paves the way for the development of styes.

Cloths wrung out in cold water will help to bring a stye to a head, after which hot compresses will aid in the opening of the stye and the relief of pain. If styes occur in crops, a doctor should be consulted.

Sunburn. This may be treated like any other mild first-degree burn. Baking soda and water, vaseline, olive oil, or tannic acid jelly may lessen the discomfort. If sunburn is severe or the victim feels sick, see a doctor.

Toothache. Go to your dentist as soon as possible. If a tooth starts aching at night or a dentist cannot be consulted immediately, the following measures may give temporary relief from pain. If there is a cavity in the tooth, pack it with a bit of cotton moistened with oil of cloves. If there is no cavity, apply heat or cold to the outside of the jaw.

FIRST-AID SUPPLIES

For the Home. In every home there should be certain first-aid materials carefully selected, carefully labeled, and kept in a special cabinet or box. This cabinet or box should be placed well out of the reach of children. If first-aid supplies are kept in the medicine cabinet, a definite part of the cabinet should be set aside for that purpose.

All boxes and bottles containing a substance which would cause poisoning if swallowed—for example, iodine and rubbing alcohol—should be labeled POISON and kept on a special shelf. The following supplies should be kept always on hand:

A clinical thermometer. For taking temperature.

First-aid dressings. Sterile gauze for wound dressings in sealed packages, bandages to hold compresses in place, and a roll of adhesive plaster. A number of 1-inch compresses on adhesive in individual packages will be found very useful. All these supplies can be purchased in any drugstore.

Rubbing alcohol (70-percent), 1 pint. Use externally to relieve the pain of sprains, strains, bruises, and to refresh the skin during an illness.

Aromatic spirits of ammonia, 2 ounces. One-half teaspoonful in some water as a stimulant.

Boric acid, 4 ounces. To make a solution for use as an eyewash, dissolve one scant teaspoonful in a glass of hot water and allow the solution to cool.

Tannic acid jelly, one tube. For minor burns.

Plain vaseline, one tube.

Sterile castor oil or mineral oil. For use in the eyes. Sterile oil may be obtained in small tubes from the drugstore.

Oil of cloves. For toothache.

Mild tincture of iodine (2-percent solution) in a bottle with a rubber stopper or individual ampoules.

A hot-water bottle and an ice bag.

Other supplies mentioned in this booklet are found in every kitchen—for example, dry mustard, salt, and baking soda (sodium bicarbonate)—or may be obtained from a drugstore when needed.

For Traveling. A small first-aid kit which can be purchased from a drugstore, will be found useful and will occupy but little space in a traveling bag. A first-aid kit should always be carried in an automobile and on camping or hiking expeditions.

For Small Workshops. A metal cabinet containing the following minimum equipment placed in a conspicuous location and under the definite supervision of some member of the organization who has had first-aid training is suggested:

Individual package-type sterile dressings.
Individual package-type finger dressings, 1½-inch compresses.
Individual package-type 3-inch compresses (also a few 4- by 6-inch).
Assorted gauze roller bandages of various widths.
Triangular bandages.
Tourniquet.
Scissors, pair.
Absorbent cotton, package or roll.
Splints of yucca or similar material.
Aromatic spirits of ammonia, individual ampoules.
Iodine, individual ampoules.
Adhesive tape, safety pins, and any special equipment for the particular type of treatment found necessary in certain industries.

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THE LIGHT THAT NEVER FAILS